

Work Order ID 161763

Tuesday, May 23, 2017 9:40:07 AM

161763

Page 1

Item ID: 646.3015 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Blade
 Start Date: 5/31/2017 Start Qty: 12.00 ***12*** Cust Item ID:
 Required Date: 6/15/2017 Req'd Qty: 12.00 ***12*** Customer:
 Reference:

MAY 24 2017

Approvals: Process Plan: DAS Date: Tooling: Date: Run Start ***NR1***
 QC: 21 Date: SPC (Y/N): Date: Stop ***NR2***
9-89

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
646.3000	N/C

100 0.00 **DAS 49 9-89**

100 BAND SAW 12 Ø 17/05/31

Bandsaw Memo 0.20

Jeaspa Bandsaw Cut Blank at 6.580"

110 0.80 **DAS 33 9-89**

110 HAAS CNC VERTICAL MACHINING #1 12 A mm 17/05/31

HAAS 1 Memo 5.00 17/06/01

HAAS CNC vertical machine #1 1-Machine per folio FB150
 DWG REV: N/C
 FOLIO REV: AA

2- deburr and break all sharp edges except otherwise noted

KNIFE EDGE MUST BE SHARPENED USING STONE, REMOVE ALL
 BURRS ON CUTTING EDGE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		OTHER :			

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Page 2

Item ID: 646.3015 Accept ***N900040100*** Setup Start ***NS1***
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Required Date: 6/15/2017 Req'd Qty: 12.00 ***12*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00				12	8		DAS 33 9-89 17/06/31
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00				12	8		DAS 14 9-89 17/06/02
140 *140* Outsource1 Outsource process - Heat Treat	Outsource process - Heat Treat Memo HEAT TREAT AS PER DWG, SEE NOTE #3 ISSUE P/O: <u>36587</u>	0.00 0.00				12		JUN 06 2017	DAS 13 0.00

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐			
		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
		☐ OTHER : _____			

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Page 3

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Revision ID: Stop ***NS2***
Item Name: Blade
Start Date: 5/31/2017 Start Qty: 12.00 ***12*** Cust Item ID:
Required Date: 6/15/2017 Req'd Qty: 12.00 ***12*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
150									
Packaging	Memo	0.00							
Packaging									
155	QC5- Inspect part completeness to step on W/O	0.00							
155									
QC	Memo	0.00							
Quality Control									
160	Spray Painting per QSI005 4.2	0.00							
160									
SprayPaint	Memo	0.00							
Spray Painting	PRIME AS PER DWG, SEE NOTE #4								
	PRIMER BATCH: <u>137287</u>								

12x SP17-6-2017

12

DAS 38 9-89 JUN 20 2017

12

DAS 41 9-89 JUL 07 2017

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

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Tuesday, May 23, 2017 9:40:07 AM

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Page 4

Item ID: 646.3015

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Blade

Start Date: 5/31/2017 Start Qty: 12.00

12

Cust Item ID:

Required Date: 6/15/2017 Req'd Qty: 12.00

12

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

170

QC14- Inspect Spray Paint

0.00

170

QC

Memo

0.00

Quality Control

DAS
38
9-89
JUL 11 2017

180

Identify as per dwg & Stock Location

0.00

180

Packaging

Memo

0.00

Packaging

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

12 DAS
6
9-89

JUL 12 2017

190

QC21- Final Inspection - Work Order Release

0.00

190

QC

Memo

0.00

Quality Control

17/7/13

u.17.07.12

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date: _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	

Root Cause			FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____				
Misidentified ☐	Past Due ☐					

Picklist Print

Tuesday, May 23, 2017 9:40:06 AM

Page 1

Work Order ID: 161763

161763

Parent Item: 646.3015

646.3015

Parent Item Name: Blade

Start Date: 5/31/2017

Required Date: 6/15/2017

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP REV:A NEW ISSUE 12/11/09 JFS VERIFY BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased	No			100	f	30.4130	0.549	6.934737			DAS 49 9-89

MSTFFI -A2-B0 500X1 250

AISI A2 TOOL STEEL BAR, 0.500 X 1.250

**

Location

MAT010

M137285

M137401

Loc Qty

30.413

18.333

12.08

Loc Code

6.841

17/05/31

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing				
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Misabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process								
Misidentified ☐	☐ Past Due	OTHER :							

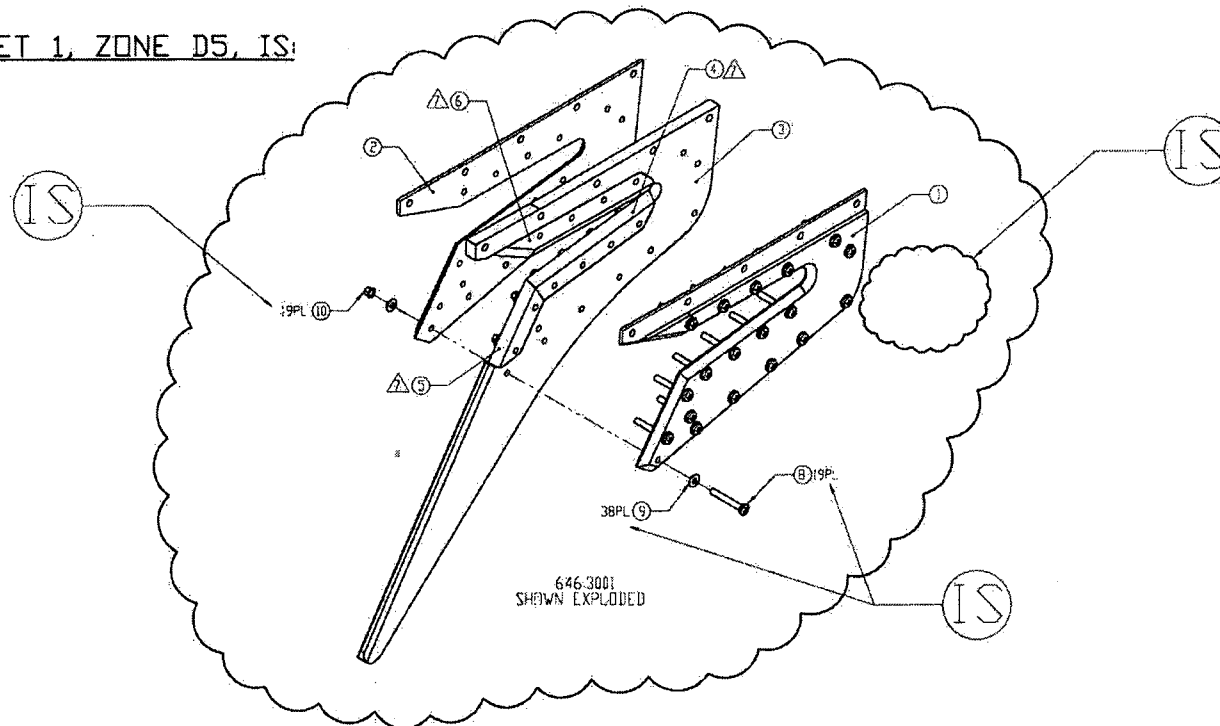
DART AEROSPACE LTD	Work Order:	161763
Description: Blade	Part Number:	646.3015
Inspection Dwg: 646.3000 Rev: NC1		Page 1 of 1

[illegible]

Rev	Date	Change	Revised by	Approved
A	15.09.11	New Issue	KJ	

APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO.		02195		SHEET 1 OF 4	
	DWG NO.	646.3000	REV: N/C	PREPARED BY	S. HUFF	DATE: 01/05/09
	EFFECT ON DWG		☐ INC. ☒ UNINC.			
	DWG TITLE: LOWER CUTTER ASSY					
APPROVED BY:		ENGR <i>[Signature]</i>	MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER	
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REMOVED RIVETS IN FAVOR OF ADDITIONAL SCREWS				

SHEET 1, ZONE D5, IS:

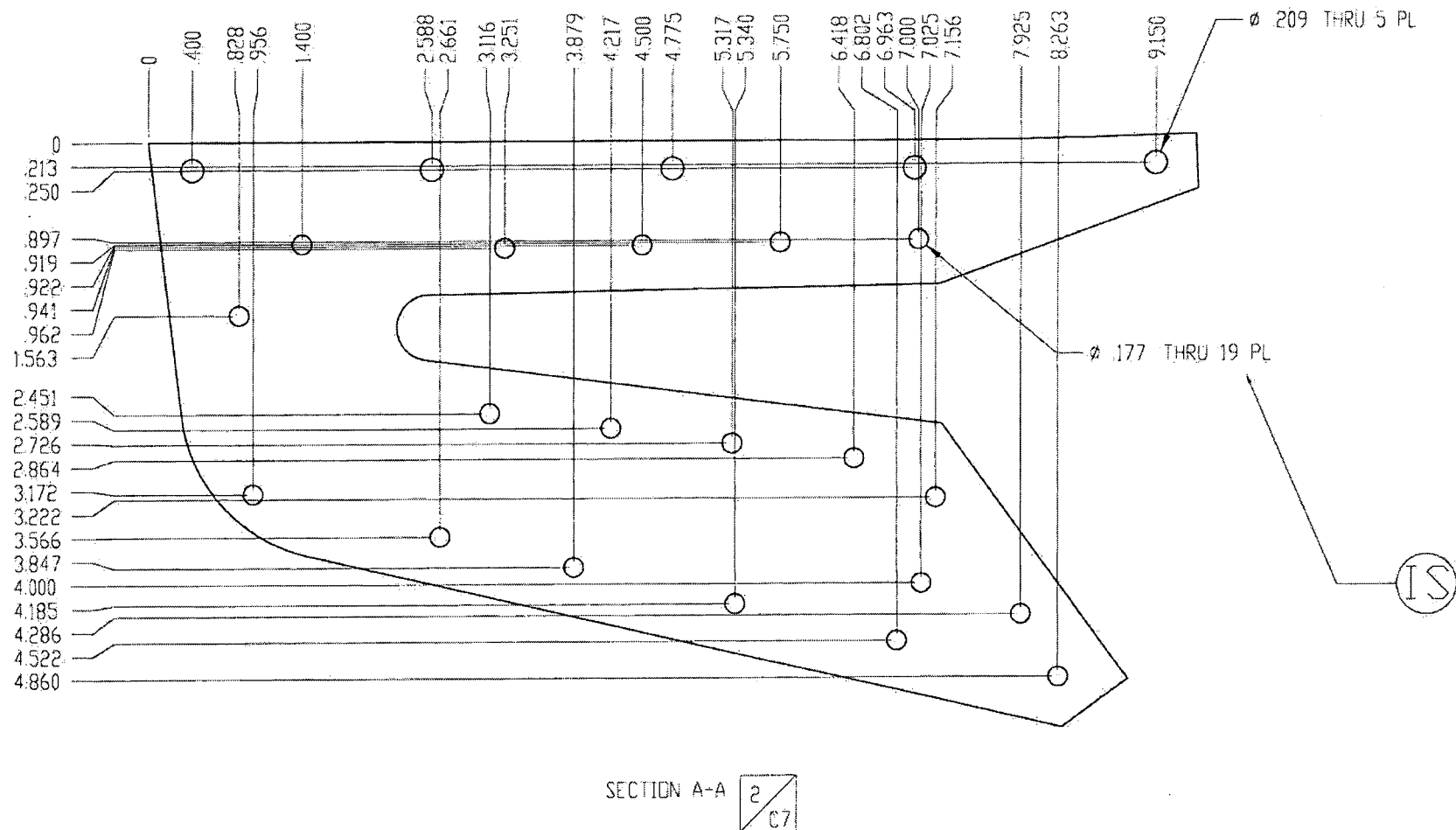


SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 161763 ML5

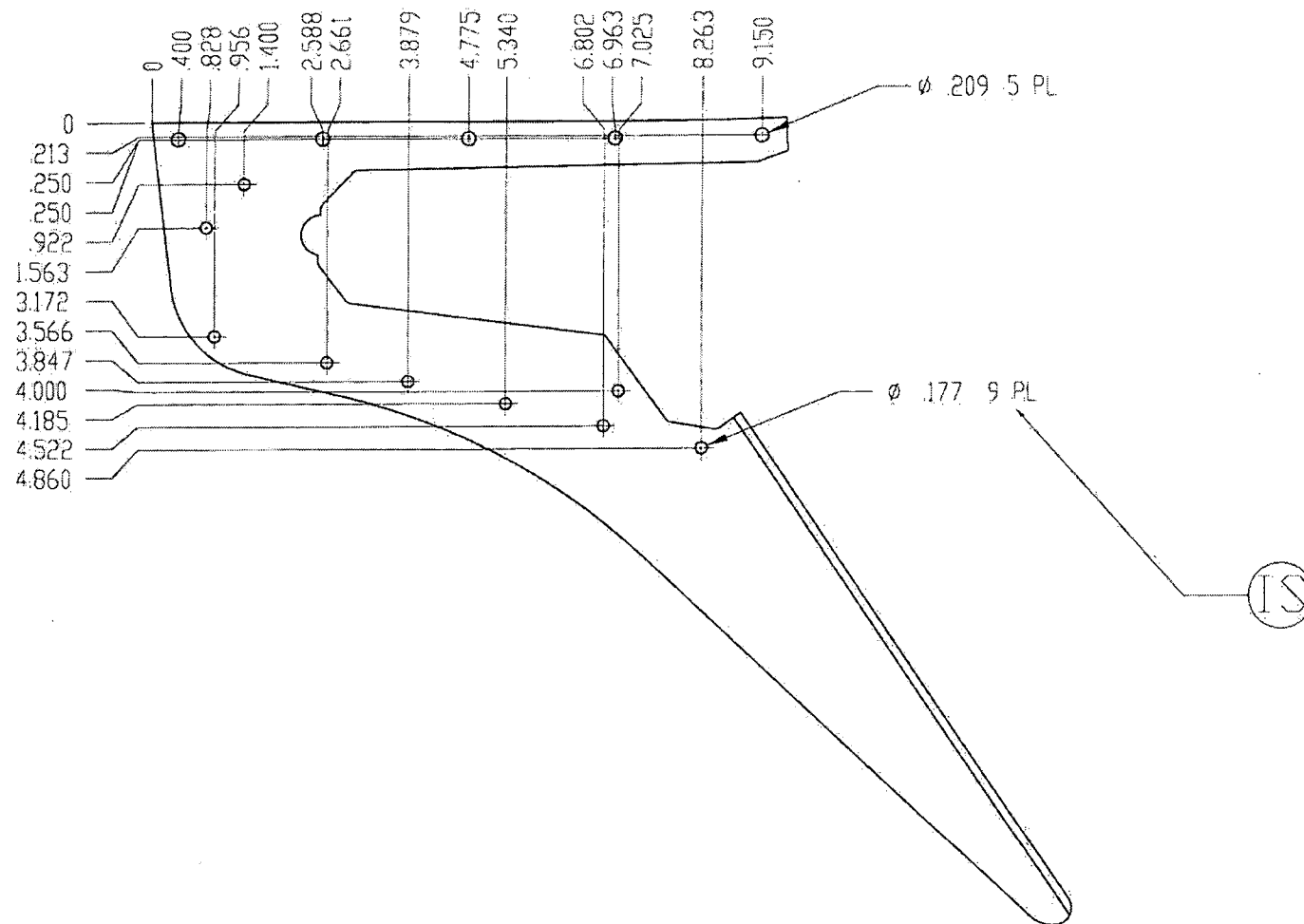
1705-24

10	R	601.1541	19	LOCKNUT	MS21042L08
9	R	601.2764	38	WASHER	NAS1149FN832P
8	R	601.2765	19	SCREW	MS27039-0819
7	D	601.2766	2	RIVET	MS20470AD5-18
			.3001		
F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION
DOCUMENTS EFFECTED:				☐ MDL ☒ INSTALL INSTRUC ☒ ICA ☐ FMS ☒ BOM	CHANGE CATEGORY ☐ MAJOR ☒ MINOR
				DER REVIEW REQUIRED ☐ YES ☒ NO	

SHEET 3 IS:



F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

SHEET 5 IS:

SECTION F-F

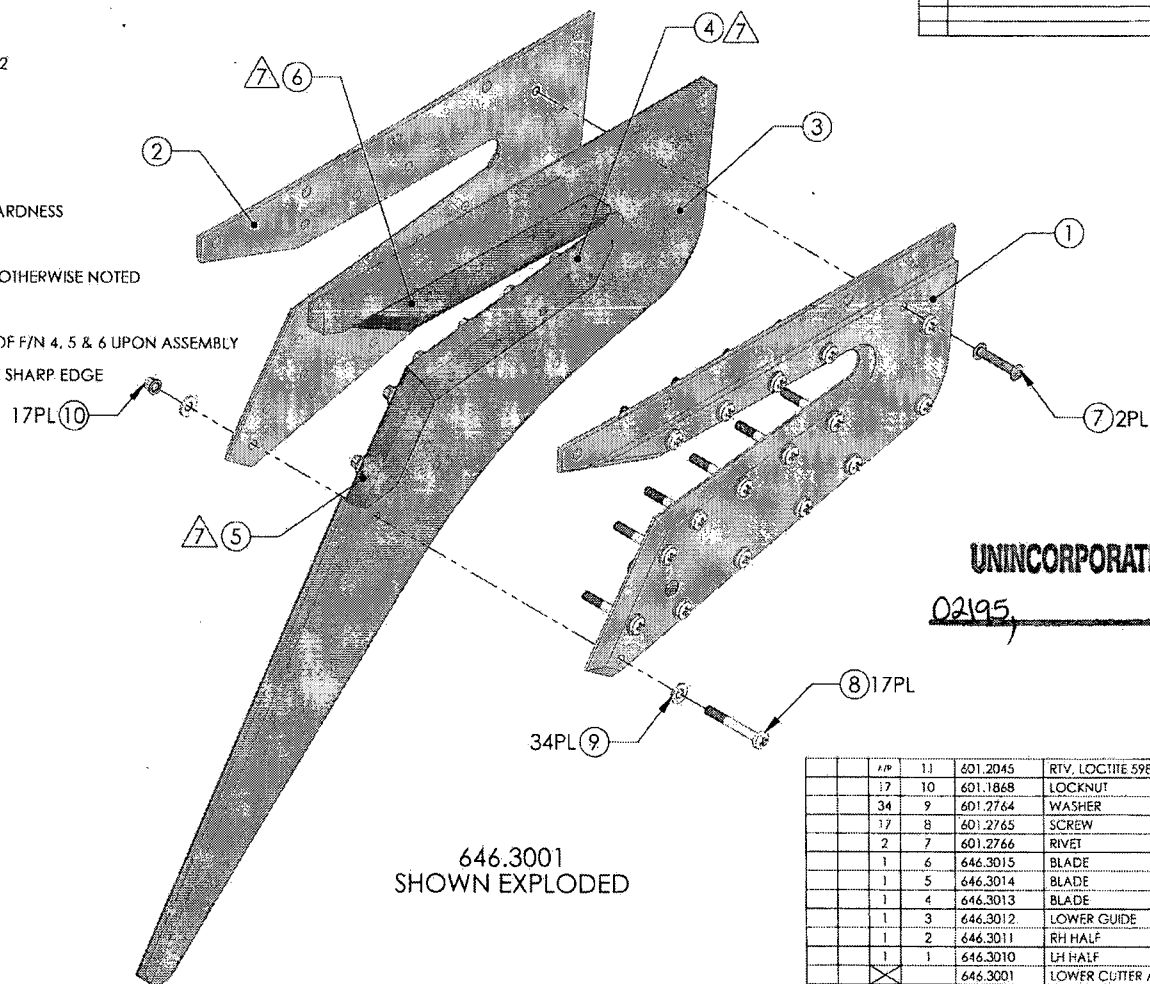


F/N	TC	PART NUMBER	QTY	DESCRIPTION	MATERIAL/SPECIFICATION

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NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; CARDINAL 4860-50 PRETREATMENT PRIMER PRIME IAW MIL-P-23377J TYPE I CLASS N
- 3 MATERIAL: AISI A2 TOOL STEEL; CONDITION: ANNEALED; POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 11 AS REQUIRED TO ALL MATING SURFACES OF F/N 4, 5 & 6 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE



646.3001
SHOWN EXPLODED

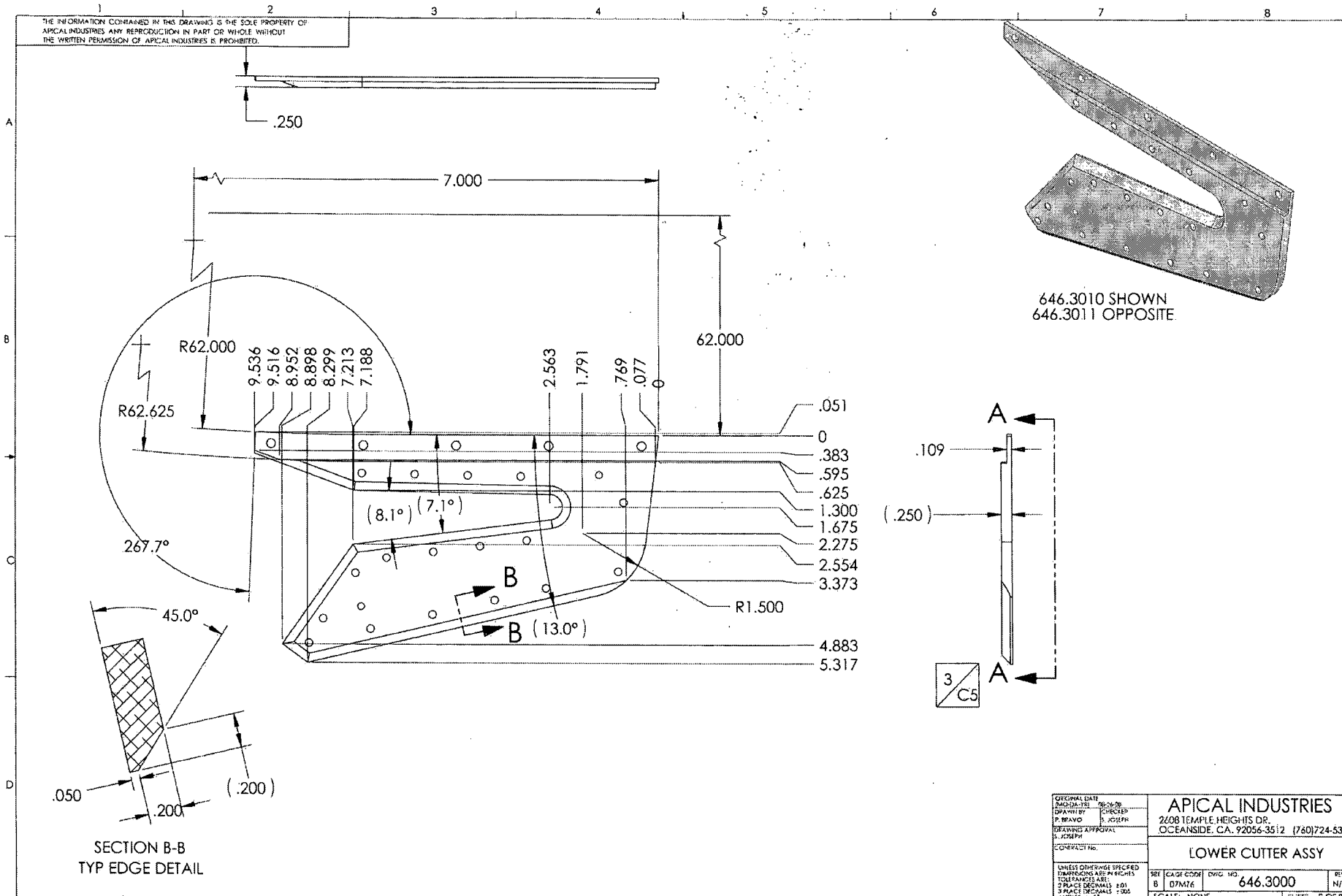
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

UNINCORPORATED ECN(s)

02195

QTY	FIND #	PART #	DESCRIPTION	MAT'L	SPEC.
1	1	601.2045	RIV, LOCKWEE 598		
17	10	601.1868	LOCKNUT	ASTM A308-01	
34	9	601.2764	WASHER	ASTM A308-01	
17	8	601.2765	SCREW	ASTM A308-01	
2	7	601.2766	RIVET	ASTM A308-01	
1	6	646.3015	BLADE		
1	5	646.3014	BLADE		
1	4	646.3013	BLADE		
1	3	646.3012	LOWER GUIDE		
1	2	646.3011	RH HALF		
1	1	646.3010	LH HALF		
1		646.3001	LOWER CUTTER ASSY		
QTY	FIND #	PART #	DESCRIPTION	MAT'L	SPEC.
PARTS LIST					
OPTIONAL DATE: 08-26-08					
DRAWN BY: P. BRAVO					
CHECKED BY: E. JOSEPH					
DESIGNED BY: P. BRAVO					
APPROVED BY: P. BRAVO					
CONTRACT NO.:					
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: 1. FRACTIONS DECIMALS ±.01 2. DECIMALS ±.005 3. ANGLES ±.1°					
NEXT ASSY (S)			APICAL INDUSTRIES		
646.4000			2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300		
			LOWER CUTTER ASSY		
			REV. 8	07M26	646.3000
			SCALE: NONE	SHEET 1 OF 8	

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ORIGINAL DATE 10/23/08		10/23/08	
DRAWN BY P. BRAYO	CHECKED S. JOSEPH		
DESIGNING APPROVAL S. JOSEPH			
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		REV. 1 CA OF CODE B 07M16	REV. 2 CA OF CODE B 07M16
SCALE: NONE		SHEET 2 OF 8	

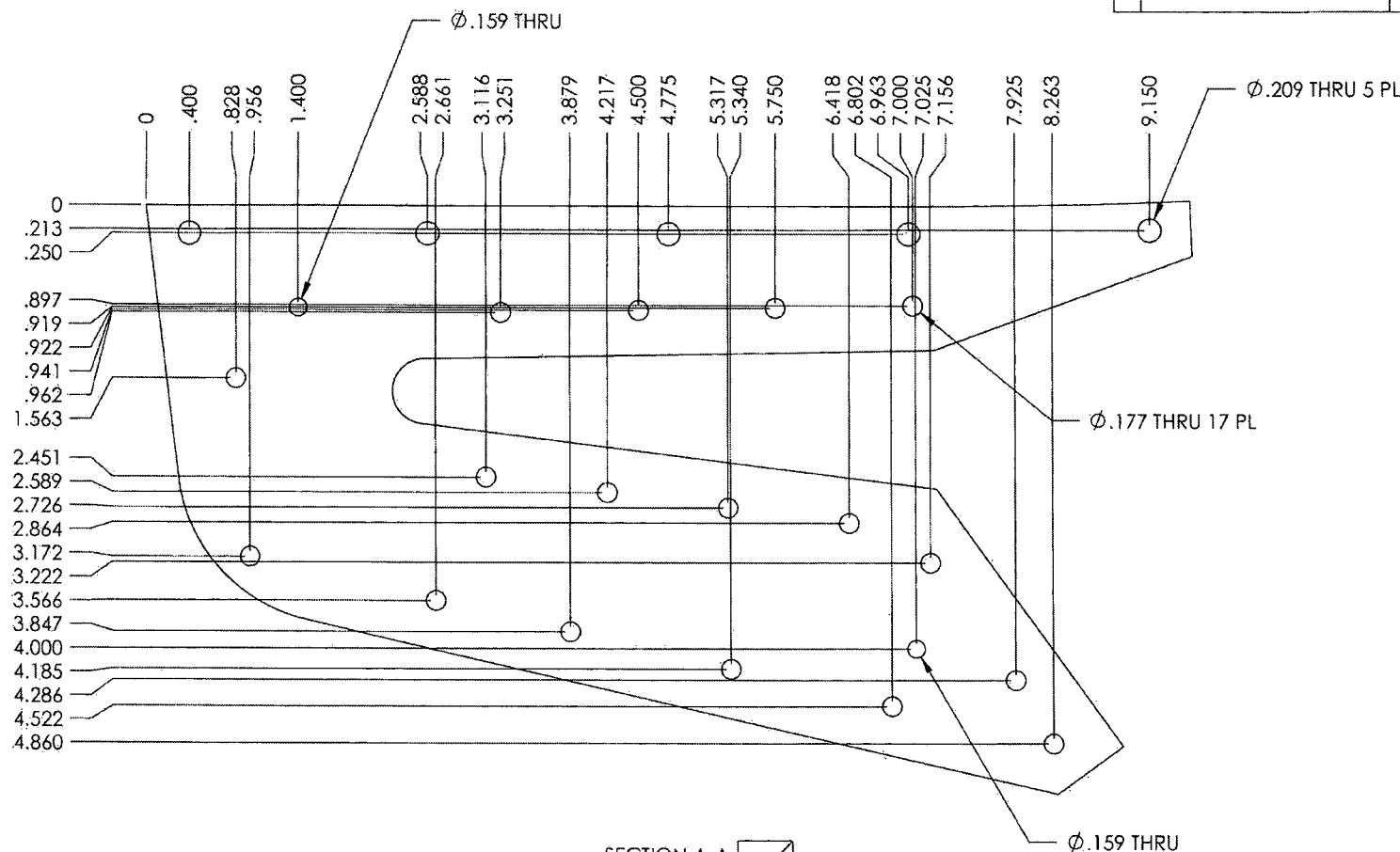
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

LOWER CUTTER ASSY

646.3000

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REV.	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE: 08-26-08
 DRAWN BY: P. BRAVO
 CHECKED BY: J. JOSEPH
 DRAWING APPROVAL: J. JOSEPH
 CONTRACT NO.

APICAL INDUSTRIES
 2608 TEMPLE HEIGHTS DR.
 OCEANSIDE, CA. 92056-3512 (760)724-5300

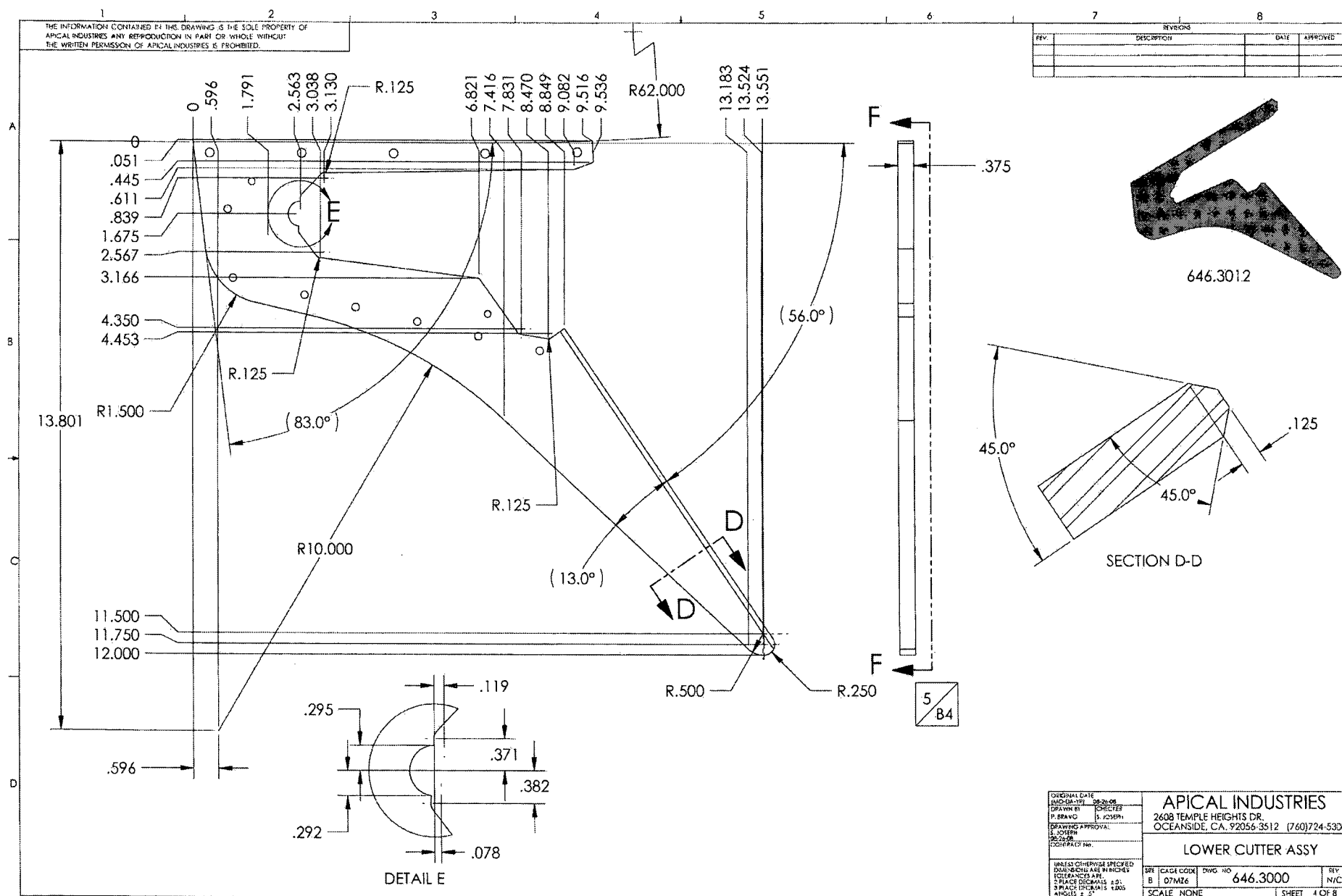
LOWER CUTTER ASSY

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 1 PLACE DECIMALS ±.01
 2 PLACE DECIMALS ±.005
 ANGLES ±.5°

REV.	CAGE CODE	DWG. NO.	REV.
B	07M26	646.3000	N/C
SCALE: NONE		SHEET 3 OF 8	

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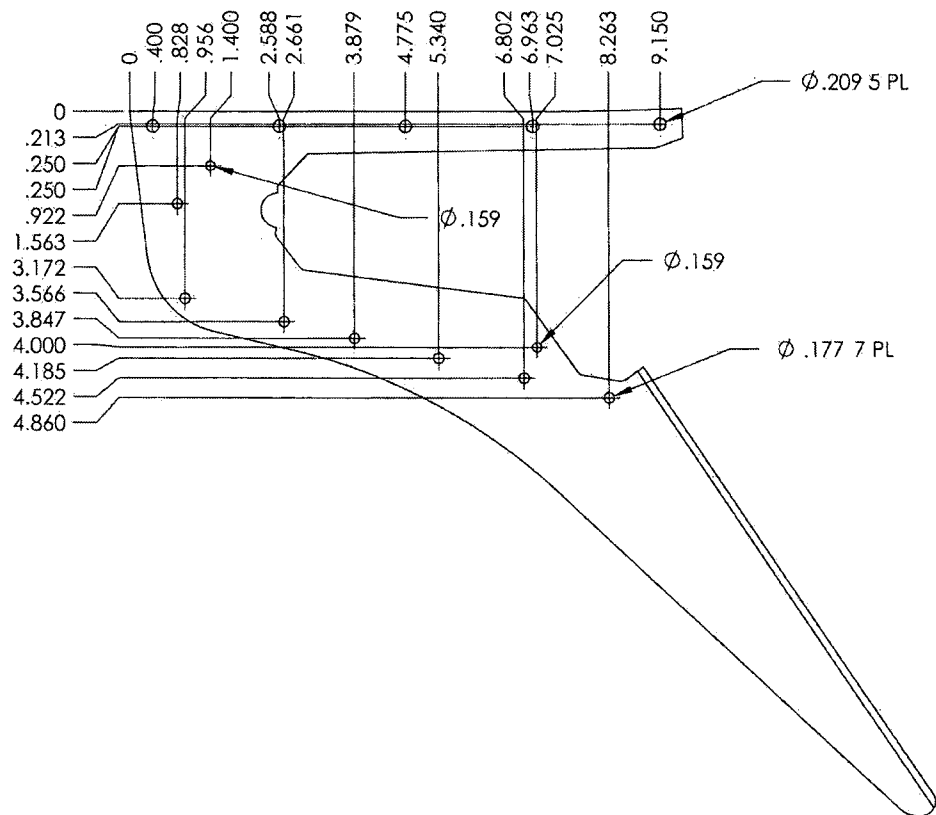
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE: 09-20-08 DRAWN BY: J. JOSEPH P. BRAVO DRAWING APPROVAL: J. JOSEPH SCALE: NONE			
APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA, 92056-3512 (760)724-5300			
LOWER CUTTER ASSY			
SRI	CAGE CODE	DWG NO.	REV.
B	07M16	646.3000	N/C
SCALE: NONE		SHEET 4 OF 8	

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REVISION			
REV.	DESCRIPTION	DATE	APPROVED



ORIGINAL DATE
06-26-08
DRAWN BY
P. BRAVO
CHECKED
S. JOSEPH
DRAWING APPROVAL
S. JOSEPH
06-24-08
CONTRACT NO.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
2 PLACE DECIMALS $\pm .01$
3 PLACE DECIMALS $\pm .005$
ANGLES $\pm .5^\circ$

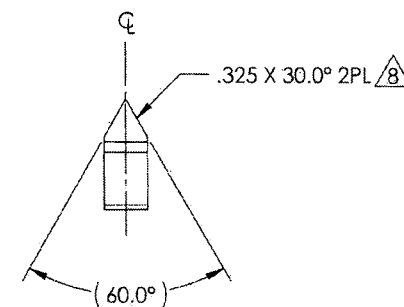
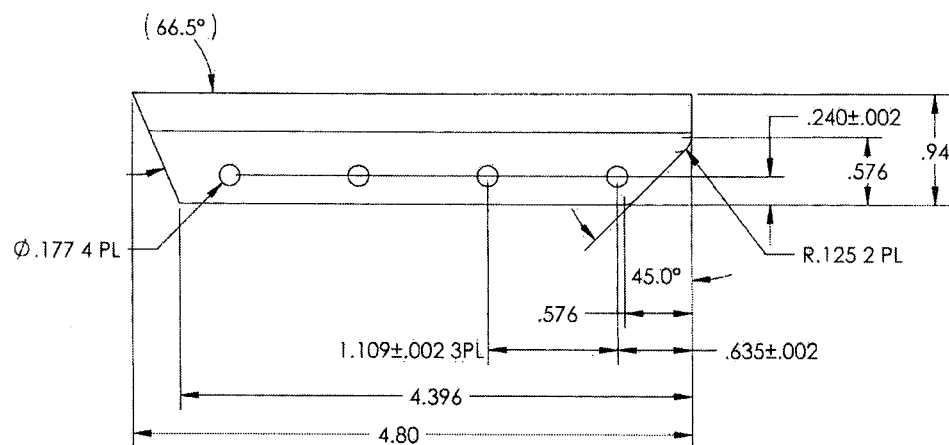
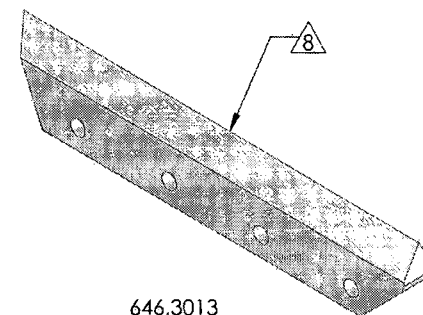
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

LOWER CUTTER ASSY

REV.	CAGE CODE	DWG. NO.	REV.
B	07M26	646.3000	N/C

SCALE NONE SHEET 5 OF 8

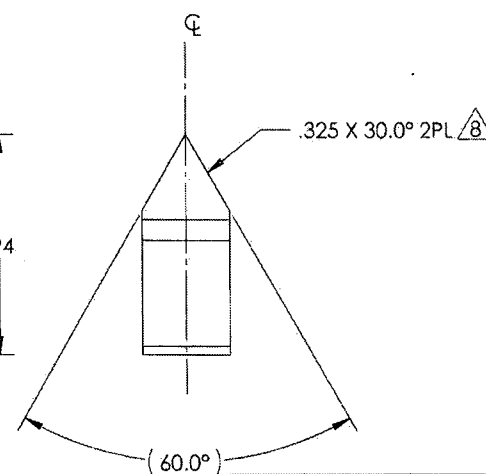
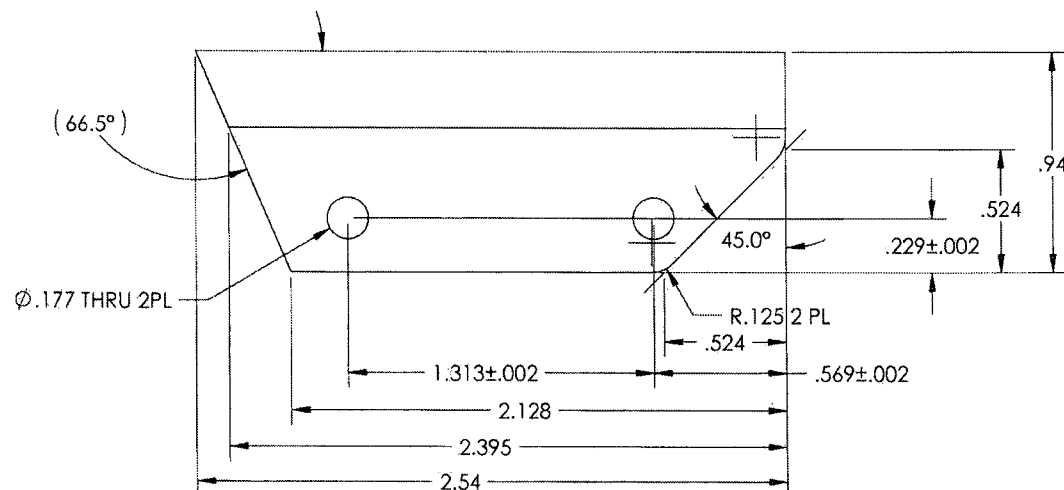
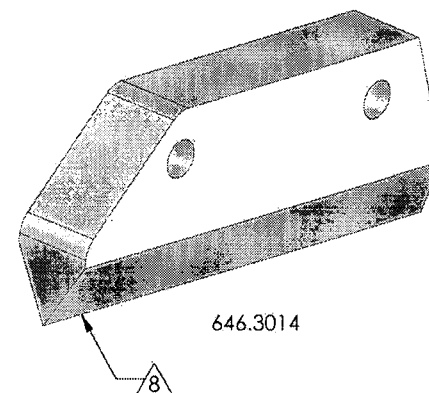
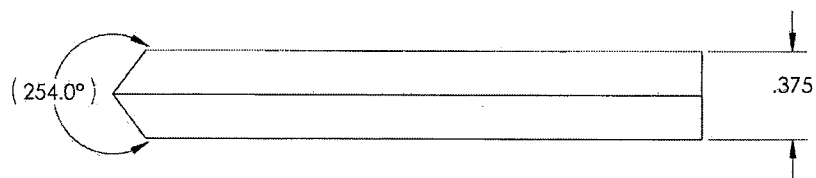
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



EXPIRATION DATE (MM-DD-YY) 06-28-08 DRAWN BY J. JOSEPH CHECKED BY R. JOSEPH DRAWING APPROVAL R. JOSEPH CONTRACT NO.	APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 714-5300 LOWER CUTTER ASSY												
THIS IS AN OVERSIZE SPECIFIC DIMENSIONAL PART. INCREASE TOLERANCES AS: 1. 3 PLACE DECIMALS 1.00X 2. 2 PLACE DECIMALS 1.00X 3. 1 PLACE DECIMALS 1.00X ANGLES	<table> <tr> <th>SET</th> <th>CAGE CODE</th> <th>QTY</th> <th>REV</th> </tr> <tr> <td>8</td> <td>07M46</td> <td>646,300</td> <td>N/C</td> </tr> <tr> <td colspan="2">SCAP NONE</td> <td>SHEET</td> <td>OF 1</td> </tr> </table>	SET	CAGE CODE	QTY	REV	8	07M46	646,300	N/C	SCAP NONE		SHEET	OF 1
SET	CAGE CODE	QTY	REV										
8	07M46	646,300	N/C										
SCAP NONE		SHEET	OF 1										

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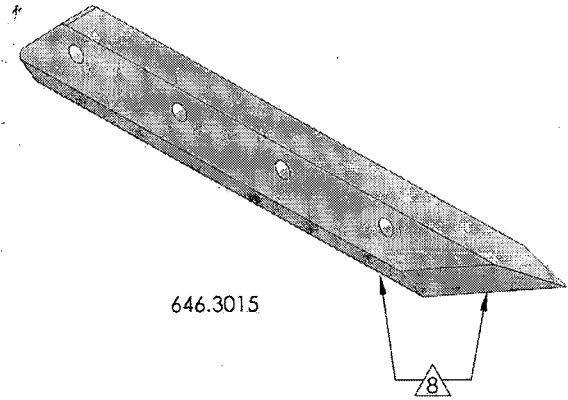
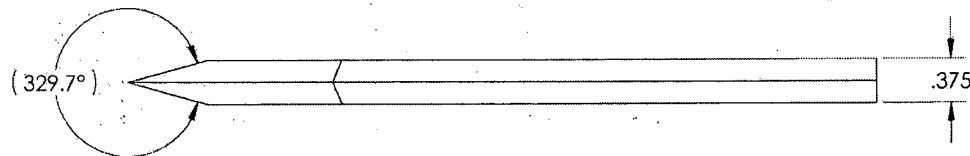
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



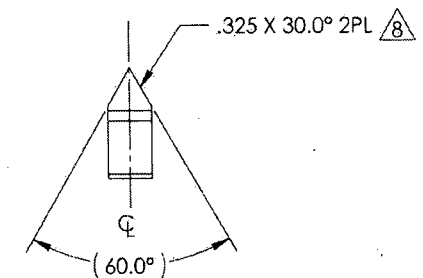
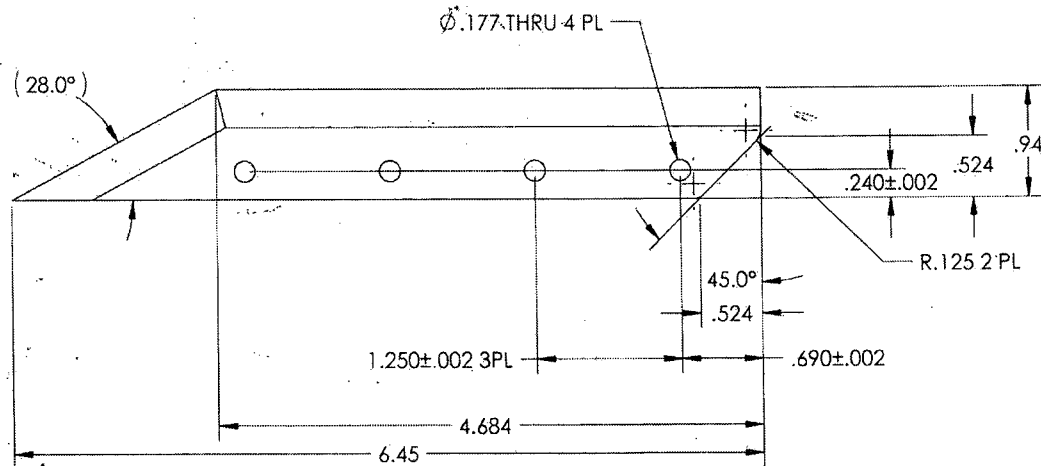
ORIGINAL DATE 08-21-08		APICAL INDUSTRIES	
DRAWN BY P. BRAVO		2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
CHECKED BY J. JOSEPH		LOWER CUTTER ASSY	
DATE 07/16/08		SCALE: NONE	
PROJECT NO.		SHEET 7 OF 8	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 1 PLACE DECIMALS ±.01 2 PLACE DECIMALS ±.005 ANGLES ±.5°		REV. N/C	

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED



646.3015



ORIGINAL DATE 10/23/81		DESIGNED BY J. JOSEPH		APICAL INDUSTRIES	
DRAWN BY P. BRAY		CHECKED BY J. JOSEPH		2609 TEMPLE HEIGHTS DR.	
DRAWING APPROVAL J. JOSEPH		CONTRACT NO.		OCEANSIDE, CA. 92056-3512 (760)724-5300	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±.5°		SCALE NONE		SHEET 8 OF 8	
CAGE CODE B 07M26		DWG. NO. 646.3000		REV. N/C	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO36587

Purchase Order Date 6/6/2017
PO Print Date 6/6/2017

Page Number 2 of 3

Order From :

VC-MET004

Ship To : DART AEROSPACE LTD

METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 450 473 1884

Ship To Contact

Ship To Phone

Ship Via: FedEx Overnight collect

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

FCA - (Free Carrier)

Line Total: \$76.96

3

161763

646.3015 BLADE

6/21/2017
Yes
6/21/2017

12.00

\$6.41 \$76.96

FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS

PART ARE MADE FROM AISI A2 TOOL STEEL

PLEASE NOTE: DETAIL C OF C REQUIRED

SP17-6-20
DAS
38
9-89

Line Total: \$76.96

4

161674

646.9711 BLADE

6/21/2017
Yes
6/21/2017

10.00

\$6.41 \$64.13

FINISH: HEAT TREAT TO 58-62 RC
ROCKWELL HARDNESS

PART ARE MADE FROM AISI A2 TOOL STEEL

PLEASE NOTE: DETAIL C OF C REQUIRED

Line Total: \$64.13

Note:

6/6/2017

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
319717	1	120223

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
36587		A2	2017/6/7	fed

QUANTITÉ Quantity	No. PIÈCE Part No.	NOM DE LA PIÈCE Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-----------------------	------------------------------	---	-----------------

46 646.3013

(12) 646.3013 161696

(12) 646.3014 161726

(12) 646.3015 161763

(10) 646.9711 161674

1 VALISE

14,

SP-7-620

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
VALISE	1	

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 46

POIDS EXPÉDIÉ / Weight Shipped : 14,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

DAS
38
9-89

QUANTITÉ EXPÉDIÉE Quantity Shipped: 46

POIDS EXPÉDIÉ / Weight Shipped : 14,00

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2017/06/16

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
319717	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
36587	N/A	A2		

SPÉCIFICATIONS DU PROCÉDÉ processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	5	80 - 82 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
46	14	646.3013 (12) 646.3013 161696 (12) 646.3014 161726 (12) 646.3015 161763 (10) 646.9711 161674 1 VALISE

COMMENTAIRES / comments

APPROUVÉ par / Approved by:

DATE: 2017-06-16

Pierre Piché
Chief Inspector



DAS
38
9-89

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
319717	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
36587	N/A	A2		
SPÉCIFICATIONS DU PROCÉDÉ processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
HARDNESS	58 - 62 HRC	5	60 - 62 HRC	

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
46	14	646.3013 (12) 646.3013 161696 (12) 646.3014 161726 (12) 646.3015 161763 ✓ (10) 646.9711 161674 1 VALISE

COMMENTAIRES / comments

VAC AHRDEN 1800F, 1:30 HR
DOUBLE TEMPER 400F, 2 HRS

Heat treatment (HT) was performed with equipment that meets the requirements of requested specification. All HT operations were performed in compliance with the required HT specification and all verifications have been performed and documented. No unauthorized changes were performed in regards to the HT. We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

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Le traitement thermique (TT) a été fait en utilisant des équipements en conformité avec la spécification demandée. Toutes les opérations de TT ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés. Aucun changement n'a été faite par rapport au TT. On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiées.

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Isabel Otero
ON Technician

METCOR
12

18 JUN 2017